

IN THE DRAWINGS

Please amend the drawings as follows.

Please replace sheets 1-4 of the drawings with the replacement sheets enclosed herewith.

REMARKS

By this amendment, claims 1, 12, 18, 26, 31, and 33 have been amended, the remaining claims remain as previously presented, no new claims have been added and no claims have been deleted. Hence, claims 1-34 remain currently pending.

1. Drawings

The pending Office Action requires that corrected drawings are required to be filed. Applicant herewith provides replacement drawing sheets numbered 1-4 to replace the originally filed informal drawings. Applicant respectfully requests replacement of the drawing sheets.

2. Response to Claim Rejections under 35 U.S.C. § 102

Claims 1-34 are rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No. 3,799,149(Rummel et al.)

Claim 1 has been amended to recite:

1. A respiratory gas exchange monitor, comprising:

a respiratory gas conduit configured to convey inhaled gases and exhaled gases of a subject;

a single respiratory gas flow meter coupled to said respiratory gas conduit, said respiratory gas flow meter being configured to generate an output associated with both a volume of said inhaled gases and a volume of said exhaled gases;

a respiratory gas sensor coupled to said respiratory gas conduit, said respiratory gas sensor being configured to generate an output associated with a concentration of oxygen in said exhaled gases; and

a computation unit coupled to said respiratory gas flow meter and said respiratory gas sensor, said computation unit being configured to process said output of said respiratory gas flow meter and said output of said respiratory gas sensor to determine an amount of carbon dioxide produced by said subject and an amount of oxygen consumed by said subject, said computation unit being configured to determine a respiratory quotient of said subject based on said amount of carbon dioxide produced and said amount of oxygen consumed.

As amended, claim 1 recites a system comprising a respiratory gas exchange monitor comprising a respiratory gas conduit and a single respiratory gas flow meter coupled to the gas conduit to generate an output associated with both a volume of inhaled gases and a volume of exhaled gases. The Rummel patent describes a metabolic analyzer that comprises a mouthpiece connected to an inspiration spirometer and an expiration spirometer. These two spirometers constitute two separate piston-based flow sensors, with the inspiration spirometer measuring the volume and temperature of air drawn by the subject through the mouthpiece, and the expiration spirometer measuring the volume, temperature, and pressure of the exhaled breath. A mass spectrometer separates the constituents of the expired or ambient air sample into a spectrum according to their mass.

Rummel does not teach or suggest a gas analyzer that includes a single gas flow meter for measuring volumes of both inhaled and exhaled gases. Instead, Rummel teaches the use of a separate gas flow meters for measuring the volume of each of the inhaled gas and exhaled gas. The use of separate spirometers for measuring inspiration (inhaled) and expiration (exhaled) gas volumes is significantly more complicated than the claimed system of a single gas flow meter for measuring both inhaled and exhaled gas volumes. Therefore, it is respectfully submitted that claim 1, as amended, is not anticipated by the cited reference.

Claims 2-10 depend from claim 1, and for the reasons provided above with regard to claim 1, it is respectfully submitted that these claims are not anticipated by Rummel. Moreover, these claims include elements that are distinguishable over the Rummel patent. For example, claim 2 recites the element of the respiratory gas flow meter being an ultrasonic flow meter. The flow meters in Rummel are a pair of piston-based spirometers, not a single ultrasonic flow meter, as claimed. The only embodiment of spirometers described in Rummel is the piston-displacement spirometers. Rummel does not teach or suggest the use of any other type of flow meter, such as an ultrasonic flow meter, as claimed. Therefore, it is respectfully submitted that claim 2 is patentable over Rummel, for this reason as well.

Independent claims 12, 18, 26, 31, and 33 have been amended to include the same amendments as made in claim 1. Therefore, for the reasons provided above with respect to claim 1, it is respectfully submitted that these claims, and their respective dependent claims are patentable over the cited Rummel patent. In addition, certain of the dependent claims

include elements that are further distinguishable over Rummel. For example, claim 16 recites a respiratory gas exchange monitor wherein the respiratory gas sensor is a fluorescence quench oxygen sensor. Rummel does not teach or suggest such a gas sensor, and therefore, claim 16 is patentable under 35 U.S.C. § 102 in light of the cited reference.

Independent claim 32 remains as previously presented, and includes the elements of “determining a speed of sound in said exhaled gases; and determining an amount of carbon dioxide produced and an amount of oxygen consumed based on ... said speed of sound is said exhaled gases.” Rummel does not teach or suggest the determination of the speed of sound in the exhaled gases of a subject, nor the use of any such speed of sound to determine the amount of carbon dioxide produced and the amount of oxygen consumed. Therefore, it is respectfully submitted that claim 32 is not rendered unpatentable under 35 U.S.C. § 102.

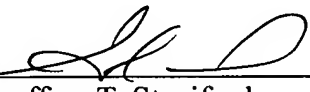
Applicants respectfully request that the above-described amendments be made part of the official record in the present application, and submit that support for the claim amendments and new claims is present in the specification, claims, and drawings as originally filed, and that no new matter has been added.

If there are any shortages, the Examiner is authorized to charge our Deposit Account Number 503616.

Respectfully submitted,

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Dated: February 7, 2007

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